**WEIGHT INDICATOR**

# MODEL FT-01 / -02

*USER MANUAL*

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# Safety information

### General

All products of this series are developed, manufactured and tested in accordance with the applicable industry safety standards. If these products are properly installed, operated and maintained according to the applicable technical instructions, drawings and specifications, no hazard exists in the normal and intended use of these products.

### General Safety Guidelines

The following general safety guidelines apply to all Flintec - products:

- All applicable safety and accident prevention recommendations must be observed VDE 0100 and VDE 0113).
- All installation, start-up and maintenance work must be carried out by **qualified service personnel** only.
- An easily accessible power outlet must be located close by for devices equipped with a main power cord and plug.
- An easily accessible MAIN POWER ON/OFF switch must be provided for equipment with permanent electrical connections.

## Electrical Safety

### Line Voltage Equipment

The following safety guidelines apply to the FT - models:

- This equipment contains components which operate on hazardous voitages. Physical contact with these components can cause electrical shock!
- Before removing the equipment's protective housing, always disconnect its power plug from the power outlet or switch off the main power to the equipment.
- This equipment must be connected to a protective earth conductor.
- Before placing the equipment into operation, make sure the actual voltage supply at the installation site is the same as the rated voltage range indicated on the equipment's serial no. plate.

# 1 INTRODUCTION

The electronic weight indicator model FT-01/-02 series is a compact microcontroller based unit specifically designed for use on systems utilising strain gauge load cells.

The standard configuration includes:

1. High accuracy analogue to digital converter (max 550.000 internal counts).
2. Front panel with 6 digits, 7 segment, LED red (20 mm) plus 8 annunciators (FT-01)
   **or** 6 digits,7 segments, LCD display black (16 mm) plus 5 annunciators (FT-02).
   8 membrane keys with tactile feedback.
3. Non volatile memory for system parameters and calibration data.
4. Flash memory for storage of 10.000 weights (Electronic tally roll or Alibi memory).
5. Serial port RS232C adapter for printing weighing data on a serial printer or host computer.
6. 2 setpoints 24 VDC / 100 mA optoisolated and 1 optoisolated input.
7. The microcontroller technology allows the instrument to perform in software all measuring functions, operator input-output, automatic controls and sequences necessary for the operation of weighing systems.
8. The setting of the unit is done through a guided keyboard operation, enabling the adaptation to operating environment and system requirements.
9. A totalizer and counter is available that may be viewed or printed.
10. Several print formats are available selectable in setup.
11. A piece count facility is also offered with selectable sample size is included in the standard software.

OPTIONS

a. RS485 serial port adapter for bi-directional communication with a host computer.
b. 2nd analogue load cell input board (PCB765).
c. Analogue output 0/4 - 20mA or 0-10V, 16 bits resolution (PCB 761) remotely powered.

## EXTENT OF SUPPLY

A. The standard supply includes:
   - The connection plugs for the load cell cable and peripherals.
   - This manual.

B. Prior to unpacking the equipment, examine the carton for exterior shipping damage and if any notify the carrier immediately.
   Remove the equipment from the carton and plastic bag.
   Inspect extent of supply for any sign of damage.
   Save packaging material.

# 2 INSTALLATION

## 2.1 Mounting

The mounting location must be such that the instrument is not subject to excessive vibrations, heat or humidity. Avoid direct sunlight on the front of the instrument. The unit has to be installed at the right height to allow an easy reading of the display and keyboard operation.

## 2.2 Wiring

Use load cell cable 6 x 0,5 $mm^2$ shielded for the sensor. Use 3 x 0,34 $mm^2$ shielded for RS232C connection and 2x0,34 $mm^2$ twisted pair and shielded for RS485 connection.

***Table top***

All connections to the instrument are made through the rear panel connectors. Strain reliefs are supplied with the connectors. The shield should be connected to the metal frame of the connector.

***Stainless steel***

-Remove the rear panel and lift it carefully.
-Insert cables via the cable glands. Strip and connect cables according to connector diagram in Annex A.
-Connect the shields of the cables between the plastic part and metal case of cable glands or at the PCB supporting screws.
-Re-install the rear panel.

## 2.3 Power

The instrument is powered from external power supply 85 – 260 VAC / 50-60 Hz / 10 VA or battery (FT-02)
As the instrument is computer controlled it requires clean power for reliable operation.
Power supplied should come from a source that is isolated from other process equipment.

## *2.4 Environmental And Electrical Considerations*

| | | |
|---|---|---|
| AMBIENT TEMPERATURE | : | Storage -10 to +70 $^0$C.<br>Operating -10 to +40 $^0$C |
| HUMIDITY | : | 40 to 90% RH (non condensing) |
| VIBRATION | : | Severe vibration can affect the accuracy of weighing and damage electric / electronic components. |
| AIR: | | The surrounding air should be dust free and not contain any corrosive gasses or materials which could adversely affect the equipment. |
| PROTECTION: | | IP40 for table top or IP65 for stainless steel. |
| ELECTROMAGNETIC FIELDS | : | Heavy electrical equipment should not be installed close to the weighing equipment. |
| INCOMING AND: OUTGOING SIGNALS | | Relays and contactors connected to the equipment must have reliable and effective interference suppression. This also applies to other equipment located within a distance of 3m from out equipment. Cabling must be performed according to normal practice. |
| NOTES: | | -WELDING on or in the vicinity of the equipment is strictly prohibited.<br>-STATIC loads, caused by thunderstorms, have to be prevented from developing by use of reliable lightning conductors.<br>-ENSURE that the cooling of the equipment is not obstructed. |

# 3 FRONT PANEL SURVEY

**FT-01 / LED display**

**FT-02 / LCD display**

**FT–02 / Battery version**

**WEIGHT DISPLAY**

Six digit LCD or LED for the display of measured weight (gross or net), and error messages.
Digit height approx. 20mm (LED) or 16mm.(LCD).

OVER-RANGE is indicated by v v v v v v

UNDER-RANGE is indicated by u u u u u u

It is illuminated when the scale is stable.

It is illuminated when the scale weight is stable and within 1/4 division of actual zero.
A ' j ' is displayed for FT-02 model.

It indicates that a tare value is being displayed. A 'T' is displayed for FT-02 model.

It is illuminated when the scale has been tared and the display is in NET mode.

It is illuminated when the weight from scale #1 is displayed.

It is illuminated when the weight from scale #2 is displayed
(if 2nd analogue load cell input option -PCB765- is installed).
When both scale #1 and scale #2 are illuminated the sum of the weight is displayed.

kg It is illuminated when weight is displayed.

It is illuminated when pieces are displayed.

b It flashes when the battery charge is below 20% of capacity.
It lights up steady when the battery charge is being displayed.
(FT-02 model only)

! **POWER ON-OFF KEY**
-Turns the unit on and initiates power on self-test.
-Turns the unit off. It must be kept depressed for 3sec.

: **SELECT SCALE KEY**
-When the 2nd analogue input is installed, the key switches between scale #1 or scale #2 or SUM (scale #1 + scale #2)
-The indicator may display the SUM of the two scales provided that the decimal point and display step of the two scales are the same.

o **ZERO / CLEAR ERROR/ESCAPE KEY**
-It is used to reset the weight display to zero. Zeroing will be effective only if the scale is stable, in gross mode, and the weight is within ± 2% of max weighing capacity.
-If an error is present on the display press this key to acknowledge.

> **NET / FUNCTION KEY**
-It is used to tare the scale. Taring will be effective only if the scale is stable and within the max weighing capacity.
-If the scale has already been tared pressing of the key will cause the tare to be cancelled and the weight display to return to Gross mode.
-If the key is kept pressed for more than 3 sec the function menu is entered.

When the display show Fn 00, press ( to return to weight display or use scroll type entry to select a function. The function menu is used to activate a number of software utilities. Refer to FUNCTION MENU for details.

~ **TARE RECALL KEY**
Pressing this key will cause the tare memory to be displayed briefly.

( **PRINT - ACCUMULATE KEY**
It is used to transmit weight data to peripheral devices via the serial port 1.
The transmitted weight will also be accumulated. The weight will be printed only if it is stable and within the weighing range of the indicator.
Printing and / or accumulation will take place only if enabled in setup.

< **TOTAL / BATTERY CHARGE KEY**
It is used to display the current accumulated total (activated only if SETUP 1.1=1)

Press < again to see the number of weighings.

Press < again to end the total display or

Press ( to print/delete the total.

If the key is kept pressed for more than 5 sec the battery charge in % of capacity is displayed.
Press Y again to end battery charge indication.

& **PIECE COUNTING KEY**
The key toggles between weight mode or piece counting mode.

## 4 FUNCTION MENU

The function menu enables the selection of a number of software programs indirectly.

Press key > and hold pressed for ≃ 3 sec.
Display shows Fn 00 . Key in the function code desired (using multi digit entry procedure).

**MULTI DIGIT EDIT**

> = MOVE ONE DIGIT TO THE RIGHT (CYCLIC)

~ = INCREMENT FLASHING DIGIT

( = ACCEPT DISPLAYED NUMBER

The corresponding program will be activated.

To exit the function selection, press ( while Fn 00 is displayed.

To exit from any function program, press ) .
For 2nd analog load cell input option, the function selected, concerns the corresponding scale (#1 or #2) displayed. The function menu will not operate if function operation is disabled (SETUP 1.8=0) or while the sum of scale#1 and scale #2 is displayed.

The following functions are available.

Fn 01 EDIT SETPOINTS
Display shows SEtP 1 briefly, then the existing setpoint value. Key in the desired value (using MULTI DIGIT EDIT procedure).
Display shows SEtP 2 briefly, then the existing setpoint value. Key in the desired value (using MULTI DIGIT EDIT procedure).
The setpoints are saved in EEPROM.

Fn 02 DISPLAY REMAINING BATTERY CAPACITY
The battery charge will be displayed as a percentage of the remaining capacity.

Fn 05 SET DATE – TIME – SERIAL Nr. (Option and enabled only if SETUP 1.6 = 1)
-Display shows: DDMMYY or MMDDYY (depends on setup 1.4)
DD=Day, MM=Month, YY=Year. Use MULTI DIGIT EDIT to edit the date.
-Display shows: HHmmSS. HH=Hour, mm=minutes, SS=Seconds. Edit the time.
-Display shows: nnnnn, the print serial number. Edit the print number.
The program ends and returns to weight display.

Fn 06 HIGH RESOLUTION
The weight display accuracy will be increased 10 times.
The display flashes. Press ) to exit and return to normal resolution.

Fn 20 - 30 PRINT TYPE SELECT
Equivalent to 2.t in SETUP 2 (i.e. Fn23 corresponds to 2.t=03)
The functions are activated only if SETUP 2.8=1

Fn 20 DISABLE PRINTER OUTPUT

Fn 21 PRINT FORMAT 1
Fn 22 CONTINUOUS WEIGHT OUTPUT
Fn 23 PRINT FORMAT 3
Fn 24 PRINT FORMAT 4
Fn 25 PRINT FORMAT 5
Fn 26 PRINT FORMAT 6
Fn 27 PRINT FORMAT 7
Fn 28 PRINT FORMAT 8
Fn 29 PRINT FORMAT 9
Fn 30 PRINT FORMAT 10

Fn 40 PIN CHANGE
Used to change the current Personal Identification Number that enables access to the calibration procedure. (The unit is factory set so that the PIN is not active i.e. 000000).
The display shows Pin 0 briefly then 000000. Key in the old pin and press ( .
The display shows Pin 1 if the pin was correct else the unit resets.
Key in the new PIN and press ( .
The display shows Pin 2. Key in the same Pin for validation and press ( .
The new pin is stored and the display shows PASS briefly.
If the two entries are not the same, FAIL is displayed briefly and the program returns with the old pin remaining in memory.

***WARNING : Make sure you do not forget the code entered. If the code is lost the unit must be returned to the factory to initialise the Pin and a fee will be charged.***

Fn 41 DOWNLOAD CUSTOM PRINT FORMAT . 1
Refer to FT-01/-02 TECHNICAL MANUAL.

Fn 42 DOWNLOAD CUSTOM PRINT FORMAT . 2
Refer to FT-01/-02 TECHNICAL MANUAL.

Fn 43 COPY LAST PRINTOUT
Used to reprint the ticket just printed, in case the paper is damaged.

Fn 48 CALIBRATION NR CHECK Displays the SEAL status and Calibration number checks.

Fn 49 SETUP & CALIBRATION Refer to FT-01/-02 TECHNICAL MANUAL

Fn 50 PIECE COUNT
The display will show the number of pieces on the scale calculated using the average piece weight already in memory (identical operation with key & ).

Fn 51 SAMPLE & DISPLAY PIECES
-Display shows Pc XX. Enter the sample size.
-Display shows the number of pieces (piece count symbol illuminates).
-Press < to display the average piece weight. (Press again to return to pieces display).
or press > to tare the scale
or press ( to print weight and pieces.
Press & to return to weight mode.

Fn 52 EDIT AVERAGE PIECE WEIGHT & DISPLAY PIECES
-Display shows XXXXX . Edit the average piece weight in * 100 accuracy.
-Display shows the number of pieces (piece count symbol illuminates).
-Press < to display the average piece weight (press again to return to pieces display).
or press > to tare the scale
or press ( to print weight and pieces.
Press & to return to weight mode.

Fn 53 SAMPLE & DISPLAY AVERAGE PIECE WEIGHT
Display shows Pc XX . Enter the sample size.
Display shows the average piece weight in * 100 accuracy. Press ) to exit.

Fn 55 VIEW ALIBI MEMORY LOCATION / PRINT 10 NEXT SERIAL NUMBERS
The display shows n 1 2 3 4 where 1234 is the serial number of the last record.
Key in the 4 digit serial number desired and press ( . The display flashes the weight of this record. Press ( to print the serial number displayed plus the next nine locations.
Press ) to exit.

Fn 56 PRINT ALL ALIBI MEMORY
Automatically prints a list of the contents of the Alibi memory. The printer must be capable of printing on 80 columns paper compressed mode.
Empty locations are printed as - - - - - - .
Corrupted locations are printed as * * * * * * .
The program exits when the printout is completed or ) is pressed.

Fn 57 CHECK ALIBI MEMORY
A checksum is performed on each Alibi memory record. If an error is found Err 57 is displayed.
Press ) to exit. If all is OK, PASS is displayed briefly.

**Alibi memory functions and storage are executed only if enabled from SETUP (SETUP 2.t=13)**

**Fn 80-99 These functions are for use by service personnel only.**

Fn 80 LOAD CELL MV METER
The actual mV/V output of the scale sensors is displayed. To act as a mV/V meter the unit loads default calibration data.

Fn 81 DISPLAY INTERNAL A/D COUNT
The analog to digital converter internal count is displayed.

Fn 82 DISPLAY VERSION – DATE
The software version and the date of the software is displayed.

Fn 85 ANALOGUE OUTPUT TEST
Display shows C 0 0 0 0 0 .
Use the "NUMERIC SCROLL ENTRY" to key in a value from 0-65535 corresponding to 0-24mA or 0-10V. Press ( to output the value displayed or press ) to exit.

Fn 86 ROM - RAM TEST
A validity check is performed on system ROM and RAM
Err 01 will be displayed if ROM data is corrupted.
Err 02 will be displayed if RAM data is corrupted.

Fn 90 DISPLAY SEGMENT TEST
All digits go through 0-9 display routine in sequence, after which the character set is displayed.

Fn 91 KEYBOARD TEST
Display blanks. The scan code of any key pressed will be shown on the display.

Fn 93 DIGITAL INPUT/OUTPUT TEST
Display shows 0. 10 the status of input and outputs. (0=Not Active 1=Active)
1st digit displays input
5th digit displays output 1
6th digit displays output 2
Press < to activate-deactivate output 1
Press & to activate-deactivate output 2

Fn 94 PRINT BUFFER TEST
An ASCII file (30h-7Fh) is output to the printer port (COM1) with error control.

Fn 96 DISPLAY RECEIVED CHARACTERS COM1 & COM2
Any character received by COM 1 will be echoed and displayed in ASCII hex on digits 1&2.
Any character received by COM 2 will be echoed and displayed in ASCII hex on digits 5&6.

# 5 POWER-UP & RUNNING

When the FT-01/-02 is powered up a self test routine is initiated during which the following data is displayed.

1. Program Number
   The software identification code is displayed briefly
   e.g. d5204E (d5206E)

2. Program Date
   The date of issue of the software version is displayed briefly
   e.g. 290999 (day - month - year)

3. Display segment test.
   All display segments are turned on then off for 2 sec.

4. The display shows the weight on the platform, then ZERO. If this weight is within ± 2% of scale capacity it will be zeroed automatically.
   If the scale can not be zeroed Err 15 is displayed. Unload the scale and press ) key momentarily to zero the scale.

5. Power up the printer if one is connected to the FT-01/-02 .

The unit is ready for operation.

If any other error message is displayed refer to Error description chapter 6 for details.

Press key ( to print / totalise.

Press key < to display / print total.

Press key & for piece counting. Use Fn 51 or Fn 52 for sampling or average piece weight entry.

Refer to chapter 3 for description of operation of keys and chapter 4 for description of functions.

Battery remaining capacity in % is displayed if the key Y is kept pressed for more than 5 sec (only FT-02 model). Press Y again to end battery charge indication.

If tilt switch is connected, closing of the contacts locks the display with "------".

## PRINT FORMATS

The following print formats are available selectable in SETUP 2.

SETUP 2.t = 01 Date - time, indicated weight.

```
 29-09-99    09:15      N:0010

WEIGHT  :       <123.40 kg>
```

SETUP 2.t = 3 Printout of weight in one line.

```
GROSS : <05210kg>
```

or

```
NET : <00950kg>
```

SETUP 2.t = 4 Printout of gross, tare, net in three lines.

```
GROSS : <06170kg>
```

or

```
GROSS :  07940kg
TARE   : 06170kg
NET    : <01770kg>
```

SETUP 2.t = 5 Label of gross, tare, net. (Quadruple size).

```
GROSS :  07940kg
TARE   :  06170kg
1.1.1.1  NET      :  01770kg
```

SETUP 2.t = 6 Number, gross, tare, net in one line.

```
1234   07940kgG
```

or

```
1234   09260kgG   07940kgT   01320kgN
```

SETUP 2.t = 7 Printout of indication without any other characters.

```
12345
```

SETUP 2.t = 8 Number and indicated weight.

```
12345   079.65kg
```

SETUP 2.t = 9 Print demand.

SETUP 2.t = 10 Ticket, Gross, Tare, Net.

```
GROSS          TARE          NET
12.345         02.345        10.000
```

# 6 ERRORS

If an error occurs during the operation, it will be displayed in the form Err xx , where xx is the Error code. Program is halted.

Press ) momentarily to acknowledge the error and proceed as indicated in the error operator response. Errors may occur during setup, programming, power-up and during operation.

| ERROR DISPLAY | POSSIBLE CAUSE | ACTION TO BE TAKEN |
|---|---|---|
| Err 01 | SYSTEM ROM : Faulty EPROM. | Contact manufacturer. |
| Err 02 | DATA RAM : Faulty CMOS RAM. | Contact manufacturer. |
| Err 04 | CALIBRATION DATA : Faulty EEPROM. | Contact manufacturer. |
| Err 05 | SCALE or A/D CONVERTER. | Check scale, cable, connectors, contact manufacturer. |
| Err 06 | LOW INPUT VOLTAGE . | Check power supplied to the instrument. |
| Err 15 | System has been initialised due to power failure o soft reset. | Zero scale. |
| Err 16 | System DATE – TIME is wrong. | Enter new date – time. |
| Err 20 | PRINTER IS NOT ON-LINE.<br>Either not connected or out of paper or failed. | Check printer cables. Press ( to retry or ) to abort. |
| Err 26 | No paper for EPSON TM295 printer | Supply with paper |
| Err 30 | Protocol not ready. Computer not connected or communication link failed. | Check computer cables. Press ( to retry or ) to abort. |
| Err 33 | Protocol not Acknowledge. No correct response has been received from host computer. | Check computer cables. Press ( to retry or ) to abort. |
| Err 50 | Small sample count. | Retry. |
| Err 51 | Small sample weight. | Retry. |
| Err 55 | Alibi memory full. | Acknowledge the error. The unique identication number will reset to 0000. |
| Err 56 | Alibi memory in NET mode (only gross). | Printout aborted. |
| Err 57 | Alibi memory corrupted | The Alibi memory can not be cleared but next records will be corrected. |
| Err 67 | Corrupted totaliser. | Clear totalising memory. |
| Err 69 | TOTALISER OVERFLOW.<br>Because totalisers have not been cleared for Long time. | Print / clear totalisers. Overflow is not critical, But remember that 1 total capacity must be added to the indication, each time an overflow occurs. |

***To exit from error display press*** O

# 7 SERIAL COMMUNICATION PORT 1 (RS232C).

The port is used to connect to serial printers or personal computers. Data output and handshake requirements are defined by SETUP 2.

| | |
|---|---|
| TYPE | Asynchronous serial ASCII, RS232C standard, full duplex (setup selectable). |
| PROTOCOL | 2400 baud, 1 start, 7 data/even parity or 8 data/no parity, 1 stop bit. |
| HANDSHAKE | DTR BUSY per character for fanfold printers or REQUEST PAPER END STATUS for EPSON TM-295 slip printer. |
| CONNECTION | DB9 male on rear panel. (J1)<br>Tx = Pin 3<br>Rx/DTR = Pin 2<br>GND = Pin 5<br>SHIELD = Metal case of D-Type connector<br><br>Cable: 3 conductor shielded max distance 15m |
| DATA | The data output of serial port 1 is selectable via SETUP 2, and maybe one of printer output, continuous weight output, or demand weight output. |

## *7.1 PRINTER OUTPUT (SETUP 2 2.t=01, 03, 04, 05, 06, 07, 08, 10, 20)*

The data to be printed, printer type and paper dimensions is defined in SETUP 2.

## *7.2 CONTINUOUS WEIGHT OUTPUT (SETUP 2 2.t=02)*

The indicated weight and status information is transmitted continuously. No handshake is required.

**DATA BLOCK COMPOSITION**
**STATUS, POLARITY, WEIGHT, SYNC (P+123.45CR)**

| BYTE | NAME | DESCRIPTION |
|---|---|---|
| 1 | WEIGHT STATUS | Bit0 0=NORMAL 1=NO WEIGHT DISPLAY<br>Bit1 0=GROSS 1=NET<br>Bit2 0= 1=AUTO ZERO<br>Bit3 0=WITHIN RANGE 1=OUT OF RANGE<br>Bit4 0=NO STANDSTILL 1=STANDSTILL<br>Bit5 0=NORMAL 1=UNDER MIN. WEIGHING RANGE<br>Bit6 ALWAYS 1 TO OBTAIN PRINTABLE CHARACTERS<br>Bit7 ZERO OR PARITY |
| 2 | POLARITY | "+" OR "-" |
| 3-8 | WEIGHT DIGITS | 6 DIGITS DEPENDING ON LD5204-06 SET UP<br>INCLUDING DECIMAL POINT IF ANY |
| 9 | SYNC | CR (0d hex) FOR SYNCHRONISATION |

## *7.3 PRINT ON DEMAND (SET UP 2 2.t=09)*

The weight data is transmitted every time a character is received from the connected peripheral.
The demand character is programmed in SETUP 3 3.t., e.g. "1" 49d or 31 hex.

## *7.4 ALIBI TRANSMIT (SET UP 2 2.t=13)*

The purpose of the Alibi memory is to produce an accurate non modifiable record for each weight transmission to a host computer so that the scale weight may be incorporated in a weighing protocol / delivery note, printed by the host computer.
The alibi record consists of unique serial number and the weight. Only gross weights may be stored.
The record is transmitted in the form:

1234 012340 kgG

The following function programs are available:

Fn 55 to view the Alibi memory records.
Fn 56 to print all the records.
Fn 57 to checksum the memory.

# 8 SERIAL COMMUNICATIONS PORT 2 (RS485)

The port is used for connection with Host computer, remote printer, remote display etc.

The mode of operation is selected in SETUP 3.

| | | |
|---|---|---|
| 1 : | 3.t = 00 | Disable |
| 2 : | 3.t = 01 | Continuous weight output |
| 3 : | 3.t = 02 | EDP protocol output |
| 4 : | 3.t = 03 | Printer protocol output |
| 5 : | 3.t = 65 - 89 | Master / Slave operation |

TYPE Asynchronous serial ASCII, HALF DUPLEX.

PROTOCOL 2400 to 57600 baud, 1 start, 7 or 8 data, 1 Even parity, 1 stop bit.

CONNECTION DB9 female on rear panel. (J3).

A = Pin 6
B = Pin 7
SHIELD = Metal case of D-Type connector
A termination resistor 120R may be connected by shorting pins 8 and 9.
Cable: 2 conductor twisted pair and shielded max distance 1000m.

## *8.1 CONTINUOUS WEIGHT OUTPUT (SETUP 3.t = 01)*

The indicated weight and status information is transmitted continuously. No handshake is required.

**DATA BLOCK COMPOSITION**
**STATUS, POLARITY, WEIGHT, SYNC (P+123.45CR)**

| BYTE | NAME | DESCRIPTION |
|---|---|---|
| 1 | WEIGHT STATUS | Bit0 0=NORMAL 1=NO WEIGHT DISPLAY<br>Bit1 0=GROSS 1=NET<br>Bit2 0= 1=AUTO ZERO<br>Bit3 0=WITHIN RANGE 1=OUT OF RANGE<br>Bit4 0=NO STANDSTILL 1=STANDSTILL<br>Bit5 0=NORMAL 1=UNDER MIN. WEIGHING RANGE<br>Bit6 ALWAYS 1 TO OBTAIN PRINTABLE CHARACTERS<br>Bit7 ZERO OR PARITY |
| 2 | POLARITY | "+" OR "-" |
| 3-8 | WEIGHT DIGITS | 6 DIGITS DEPENDING ON LD5204-06 SET UP<br>INCLUDING DECIMAL POINT IF ANY |
| 9 | SYNC | CR (0d hex) FOR SYNCHRONISATION |

## *8.2 EDP PROTOCOL OUTPUT (SETUP 3.t = 02)*

This mode is used to transmit the data printed to a host computer. Transmission will begin after completion of printing. ACK / NAK handshake or no handshake may be used.
The host must reply with ACK (06 h) if it received the data correctly or NAK (15 h) to enable retransmissions.

DATA BLOCK COMPOSITION : STX = (02 h) = start of text character
DATA = Printable ASCII data identical to the data printed.
ETX = (03 h) = End of text character.
BCC = Block check character.(XORSUM of all data characters STX, ETX inclusive)

HANDSHAKE : ENQ (05 h) from host within 5 sec of protocol initialisation.
ACK (06 h) from host within 5 sec after the end of transmission
or NAK (15 h) from host within 5 sec after the end of transmission to enable retransmissions of the block. The number of repeats is unlimited.

ERRORS : Err 30 : Host not ready
Err 33 : Host not Acknowledge

***Refer to Error chapter for details on error response.***

SETUP REQUIREMENTS : 3.t = 02

| | | |
|---|---|---|
| 3.1 = Time out control | 0 = No | 1 = Yes |
| 3.2 = Handshake | 0 = No | 1 = Yes |
| 3.3 = Operator disable | 0 = No | 1 = Yes |
| 3.4 = Host enquiry | 0 = No | 1 = Yes |

Time out control : The FT-01/-02 checks the on line status of the interface and reports an error if failure is detected.
Handshake : The FT-01/-02 will check for reception of ACK / NAK character after transmission.
Operator disable : The operator will be prompted to disable further transmission(s) if an error occurs, if SETUP 3 3.3 = 1. Transmission will be enabled again after a power on reset.
If SETUP 3 3.3 = 0 only the current transmission will be aborted.
Host enquiry : The FT-01/-02 waits for ENQ (05h) character before it begins transmission.

## *8.3 REMOTE PRINTER OUTPUT (SETUP 3.t = 03)*

Used to transmit the data printed on the local printer to a remote printer.
No handshake is required.

### *8.4 MASTER / SLAVE OPERATION*

Used to connect several FT-01/-02 units in a local network to a higher level computer which acts as the master. Refer to FT-01/-02MSP SERIAL INTERFACE for details.

## 9 DIGITAL SET POINT OUTPUTS

The SET POINT option is designed for interfacing FT-01/-02 units with weighing automation systems. It contains two opto-isolated outputs that can be operated as weight set points.

The set points are programmed using the program Fn 1.
The two set points are programmed in sequence. When all set points have been edited the program returns to the weight display mode.

The SET POINT may be activated by net weight value (SETUP 5.6=0) or by gross weight value (SETUP 5.6=1).

SET POINT outputs may be operated as normally open if SETUP 5.7=0 or normally closed if SETUP 5.7=1

SET POINT outputs may be activated for test purpose using Fn 93.

TECHNICAL CHARACTERISTICS OF OUTPUTS

- Transistor output open collector positive common
- 24 VDC ± 10% / 100 mA per output
- Max off - state voltage 30 VDC / leakage 100 µA
- Optoisolated to 2.5 kV
- Short circuit protected
- ON delay 2 ms max, OFF delay 2 ms max

### DIGITAL INPUT (TILT SWITCH)

Used to set the time delay for the tilt switch function.
Function is enabled from SETUP 4.t=xx . If xx=00 tilt function is disabled. Else set the time delay (time in 1/10 sec) for display lock. Display locks after xx time when contacts close and unlocks after the same time, when contacts open.

TECHNICAL CHARACTERISTICS OF INPUT
9-24 VDC , positive common optoisolated to 2.5 kV.
Input resistance 3.3 kΩ
ON delay 2 ms max. OFF delay 2ms max.

# 10 MAINTENANCE

The unit does not require any routine maintenance. It may be necessary to perform periodic checks of the calibration of the scale due to mechanical reasons. The frequency of the calibration checks depends on the application condition and on the required measuring accuracy.

It may happen that, in exceptional conditions, the unit locks on a wrong memory location and it is not possible to restart because the keyboard is not operative.

To restart is necessary to switch the power OFF then ON again.

## *1.2 10.1 SERVICE*

- They're no serviceable parts. Trained personnel must service the unit only. The user may check Load cell connection and power supply.

- LOAD CELLS
  Load cells are reliable and very rarely present errors. Check input and output resistance, and resistance between any terminal and shield. Check load cell connection and cable.

- POWER SUPPLY
  Check power supply

- SETPOINT OUTPUTS
  Check 24VDC power supply

FLINTEC maintains a fully trained staff of field service engineers who provide:

- Technical assistance by telephone.
- Application assistance on-site or by telephone.
- Trouble shooting on-site.
- Warranty (replacement) or spare parts assistance.
- Training on-site or at out service centre.
- Equipment updates to our latest configuration.

Our engineers will check repair, mechanical, electrical, electronic, wiring and calibration errors.